

**Notice of Allowability**

Application No.

10/686,577

Applicant(s)

HAYASHI, JUNICHI

Examiner

Randal D. Moran

Art Unit

2135

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment filed 10/15/2007.
2. ☒ The allowed claim(s) is/are 1,5-7,9 and 10.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413),  
Paper No./Mail Date 20071212
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

/RDM/

### **DETAILED ACTION**

1. Claims 1, 4-7, 9, and 10 are pending.
2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/15/2007 has been entered.

### ***Double Patenting***

1. The rejection of Claims 13-16 for Double Patenting is withdrawn in view of amendment filed 10/15/2007.

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### **EXAMINER'S AMENDMENT**

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Brian L. Klock (202) 530-1010 on 12/17/2007.

The application has been amended as follows:

6. (currently amended) An information processing apparatus for receiving encoded image data compression-coded for each spatial rectangle region that constitutes an image and encrypting the encoded image data, characterized by comprising:

means for repeatedly forming one spatial rectangle region group from a plurality of adjacent special rectangle regions and another spatial rectangle region group from a plurality of adjacent spatial rectangle region groups so as to define a hierarchical structure of spatial rectangle region groups, dividing the encoded data of a spatial rectangle region located at a terminal of the hierarchical structure into a plurality of partial encoded data regarding resolution or quality, and arranging the partial encoded data toward the terminal in descending order based on the resolution or quality so that partial encoded data of lowest resolution or lowest quality is arranged at the terminal of the hierarchical structure, thereby defining a tree that has as nodes the respective spatial rectangle region groups, the respective spatial rectangle regions, and the respective partial encoded data;

means for assigning identification information uniquely identifying each node to each node in the hierarchical structure;

means for generating encryption key information for a node located at an uppermost layer of the tree structure for an entire image expressed by the encoded image data;

means for executing, up to a node located at the terminal, processing for generating encryption key information for a node of interest on the basis of encryption key information generated for a node located at an upper layer, identification information

assigned to the node of interest, and a one-way function, so as to generate encryption key information for each node;

means for designating, in the tree structure, the position of a desired node among the plurality of partial encoded data;

means for setting, as an object to be encrypted, partial encoded data designated in said designating step and partial encoded data at a higher layer than the layer of the designated partial encoded data; and

means for encrypting each partial encoded data set in said setting step using the generated encryption key information corresponding to each node,

wherein at least one of said means is implemented using hardware.

10. (currently amended) An information processing apparatus for receiving information containing encoded image data compression-coded for each spatial rectangle region that constitutes an image, said encoded image data containing both encrypted data and unencrypted data, and reproducing an image, characterized by:

means for repeatedly forming one spatial rectangle region group from a plurality of adjacent spatial rectangle regions and another spatial rectangle region group from a plurality of adjacent spatial rectangle region groups on the basis of the received information so as to define a hierarchical structure of spatial rectangle region groups, dividing the encoded data of a spatial rectangle region located at a terminal of the hierarchical structure into a plurality of partial encoded data regarding resolution or quality, and arranging the partial encoded data toward the terminal in descending order based on the resolution or quality so that partial encoded data of lowest resolution or

lowest quality is arranged at the terminal of the hierarchical structure, thereby defining a tree that has as nodes the respective spatial rectangle region groups, the respective spatial rectangle regions, and the respective partial encoded data;

means for assigning identification information uniquely identifying each node to each node in the hierarchical structure;

means for receiving key information, which is assigned to a spatial rectangle region, to be used to decrypt the spatial rectangle region containing encrypted partial encoded data;

means for sequentially generating key information up to a desired partial encoded data located at a lower layer of the spatial rectangle region of interest on the basis of the received key information, identification information assigned to the node of the spatial rectangle region and a one-way function, so as to generate the key information to for each node; and

means for decrypting each encrypted partial encoded data by using the key information generated for each partial encoded data.

wherein at least one of said means is implemented using hardware.

***Allowable Subject Matter***

1. Claims 1, 4-7, 9, and 10 are allowed.
2. The following is an examiner's statement of reasons for allowance: The prior art teaches arranging an image on the basis of resolution quality with the root of the tree being the lowest resolution and the terminal of the tree corresponding to the highest resolution image, but fails to teach the key management system of the present invention including arranging an image into a hierarchical structure on the basis of resolution with the ability to assign identification information to each individual node and designate specifically which partial encoded data is to be encrypted. The respective key values for each node in the structure are derivable only from the key of the parent node. In this fashion, one can generate key values for any designated node of interest based on only the key for the root node (content key/entire image). These features were not disclosed within the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

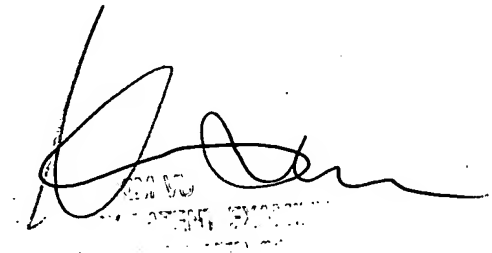
***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Randal D. Moran whose telephone number is 571-270-1255. The examiner can normally be reached on M-F: 7:00 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Vu can be reached on 571-272-3859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Randal D. Moran  
/RDM/

A handwritten signature in black ink, appearing to read 'Randal D. Moran', is written over a faint, rectangular stamp. The signature is fluid and cursive.

12/12/2007